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MAY 1973

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Copy 5 of 11

9 May 1973

MEMORANDUM FOR: Deputy for Operations

SUBJECT : Computer Flight Planning

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1. In September 1972 work was initiated in developing a worldwide computer program for IDEALIST U-2 operations. The program, as originally envisioned was to develop a flight planning capability. The initial phase included the establishment of a flight planning data base. To establish this data base, methods of flight planning, fuel curves, aircraft weights and performance, etc. were extracted from [redacted] flight planning documents. Fortunately the basic flight planning concept was available from the OXCART program and with the help of AAPS personnel a computer program was ready for initial "in-house" evaluation by November 1972.

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This initial evaluation consisted of insuring the basic concept of computer flight planning worked. As a test, seven [redacted] operational missions were used as a comparison. Initially the computer was checked against Headquarters prepared flight plans and was subsequently checked against the green cards of the same routes which had been flown operationally (Attachment 1). Initial results were very satisfactory and proved the feasibility of computer flight planning.

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2. As a result of the "in-house" evaluation, improvements were made in the initial program which resulted in:

- A. Computer flight planning work sheets.
- B. A condensed version of the computer flight plan which listed all information on the pilots green card.
- C. A JN, ONC or 36 inch scale plot of the route.
- D. A new IDEALIST/TACKLE page map and plot of the route.

NRO review(s) completed.

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E. Ability of this computer to produce a paper tape flight plan.

F. Wind corrected flight plans.

3. During February 1973 Headquarters personnel visited [ ] to brief the envisioned computer operation and to develop operational concepts. Through March, six computer flight plans for RED DOT, [ ] missions were forwarded from Headquarters to [ ] for evaluation. Results were reported by [ ] "to be very accurate". At this point, further program refinements were initiated.

4. During April, [ ] personnel were briefed on the capabilities of computer flight planning. Numerous advantages of converting to computer flight planning were noted by [ ] flight planners during the Headquarters visit.

5. In summary, the present computer flight planning program has proven itself to be a very accurate and workable means of flight planning. It must be noted that the computer output is only as good as the input data. However, computer operations afford an opportunity for much greater accuracy and if properly done will eliminate errors in flight planning. (An example being a bad coordinate. With the computer production of a route plot bad coordinates will be a thing of the past). Flight planning with the aid of the computer is similar to the flight planning principles now employed and will take the flight planner basically the same amount of time. However the data derived from the computer far exceeds data now being prepared. Contrary to the present flight planning system, with a computer flight plan the field unit will know exactly what the Headquarters is thinking and using as planning factors. A perfect example is the low level portion of the SCOPE SHIELD mission. This mission was very unique as no one had any idea of low level U-2 operations. Subsequently the Headquarters planned for a higher low level airspeed than was actually flown by [ ]. The difference when the departure and arrival were combined resulted in approximately a 30 minute difference in flight planning time. When the discrepancies were noted and corrected the pilot's green card and the computer flight plan agreed in all areas.

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6. The present computer flight planning capability should be implemented operationally with both [ ] 25X1  
Follow on phases currently under evaluation includes the use of the computer to determine vulnerability of the U-2 to MIGs and SAMs, and target coverage data.

25X1 7. The present system can be employed with [ ] either 25X1  
of two ways to build up confidence in the system. The most productive changeover would occur if existing operational routes [ ]  
25X1 [ ] were converted to the computer system. This would allow for field comparison of planned and previously flown missions to increase confidence and at the same time allow a conversion to computer flight planning. With this method approximately one route per week would be converted so as not to overload [ ] flight planners and thus induce confusion. Another approach would be to convert all [ ] training routes to the computer format prior to converting operational 25X1 routes. This approach would allow Headquarters flight planners, who have not previously worked with the computer, the opportunity to computerize short flight plans and at the same time would 25X1 allow for a confidence factor at [ ] prior to converting operational missions. In either situation, the computer flight planning capability has proven to be a very accurate and workable method of planning IDEALIST U-2 operations and should be employed operationally.

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Attachments - 1  
Comparison Chart

IDEA/O/OSA [ ] (7 May 73)

Distribution:

- 1 - D/O/OSA (w/atts)
- 2 - DSA/OSA (w/atts)
- 3 - IDEA/OSA (w/atts)
- 4 - D/M/OSA (w/atts)
- 5 - INTEL/OSA (w/atts)
- 6 - SS/OSA (w/atts)
- 7 - COMMO/OSA (w/atts)
- 8 - AAPS/OSA (w/atts)
- 9 - SAS/OSA (w/atts)
- 10 - WX/OSA (w/atts)
- 11 - RB/OSA (wo/atts)

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